

APPELLANTS' BRIEF ON APPEAL

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
William C. Ulland et al.)	Examiner: Unknown
)	
Serial No.: 10/729,620)	Group Art Unit: 1775
)	
Filed: December 05, 2003)	Docket: 970.0111USU1
)	
For: Metal Engraving Method,)	
Article, and Apparatus)	

APPELLANTS' BRIEF ON APPEAL

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee, Ikonics Corporation, a Minnesota Corporation.

2. RELATED APPEALS AND INTERFERENCES

None.

3. STATUS OF THE CLAIMS

Claims 1-16 and 31-34 are pending and claims 17-30 are cancelled.

4. STATUS OF AMENDMENTS

All pending claims are as originally submitted and have not been amended.

5. SUMMARY OF CLAIMED SUBJECT MATTER

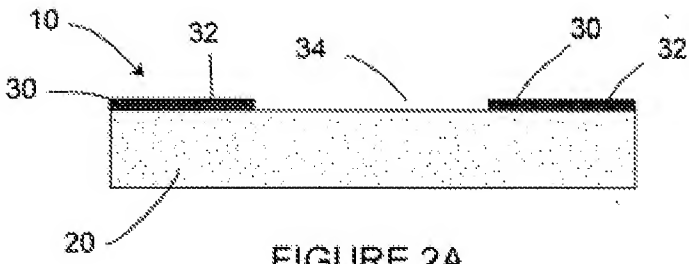
The claimed subject matter relates to an etched metal article having, in an embodiment, a compression formed particulate metal object that has at least a portion of a surface selectively removed by an abrasive etching process. Figure 1 of the patent application is reproduced below, showing an object made in accordance with an embodiment of the disclosed invention:



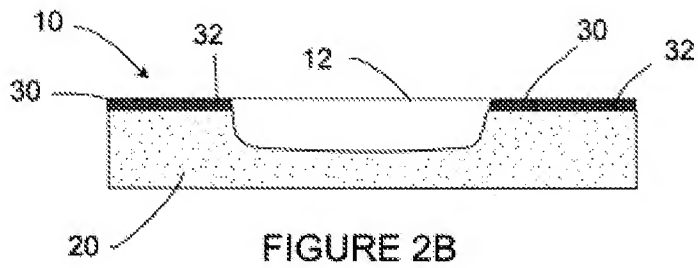
Figure 1

In another embodiment of the invention, an etched metal article includes a multi-layer object that has a compression formed particulate metal layer. The particulate metal layer is formed by pressing a substantially free-flowing particulate material under sufficient pressure that it forms a substantially rigid sheet. This sheet is impregnated with an impregnant to make the rigid sheet readily etchable by abrasive etching. The multi-layer object further includes an etch resistant layer in contact, or near contact, with the particulate metal layer. The etch resistant layer has at least twice the resistance to abrasive etching as the compression-formed particulate metal layer. A portion of the compression-formed particulate metal layer has been selectively removed to expose the etch-resistant layer.

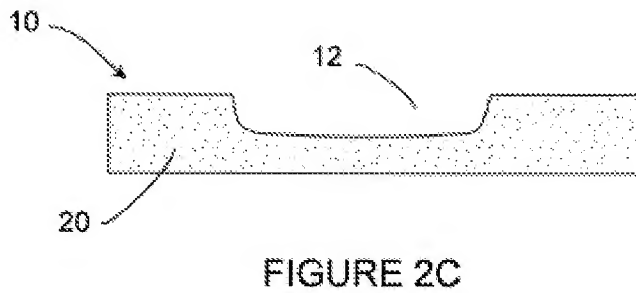
As shown in Figure 2A, a metal object 20, such as one that is of a compression-formed particulate metal object, may be covered with a mask 30 having intact areas 32 and removed areas 34.



As shown in Figure 2B, an abrasion or sand-blasting process may be used to remove a portion 12 from the metal object 20 corresponding to removed areas 34 of mask 30.



Mask 30 is then removed to reveal metal object 20 having removed area 12.



6. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 1-10, 12-16, and 31-34 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiya (JP 04-151208).
- B. Whether claim 11 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiya (JP 04-151208) in view of GB 667,219.

7. GROUPING OF CLAIMS

Claims 2-16 are dependent upon claim 1 and claims 32-34 are dependent upon claim 31. The patentability of independent claims 1 and 31 is asserted, from which it follows that each of the claims dependent thereon are also patentable. MPEP § 2143.03 (citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988)) (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.”).

8. ARGUMENT

Sekiya does not disclose an abrasive etching process, as required by both independent claims on appeal, namely claims 1 and 31. Moreover, the Office Action does not cite any reference that discloses the use of an abrasive etching process with a compression-formed particulate metal object. Rather, the Final Office Action only states that “it would have been obvious to one of ordinary skill in the art to have recognized that obvious alternative etching processes could be employed with a reasonable expectation of success.” However, this is not true.

The substitution of abrasive etching for acid etching would not merely yield a predictable result. Rather, the substitution of abrasive etching as in accordance with the present invention would result in a great improvement that Sekiya could not or did not contemplate. Specifically, Sekiya’s technique of acid etching a sintered material will likely result in a weakening of the material because such sintered materials are generally porous, which allows the acid etchant to penetrate the pores and to remove material from the body of the piece. This material removal then leads to structural weakening of the material, and possibly the failure of the material to perform in its intended application. The use of abrasive etching as devised by the Applicant of the present invention avoids these problems unforeseen by Sekiya. In addition, the technique disclosed by the Applicant avoids the disadvantages of having to handle toxic materials and the tendency of an acid etchant to undercut the mask and produce a poorly defined etch, among other disadvantages.

Furthermore, the Final Office Action asserts that

“the claims are drawn to an article, not the method of making. The claims recite that a portion of the object has been removed from the surface. The object of Sekiya having been subjected to the acid etching process would also have a portion removed from the surface such as claimed.”

In effect, the Final Office Action asserts that the claim language that requires at least one surface be formed by an abrasive etching process can simply be ignored and that the claim language is to be interpreted as covering any object that has a portion of its surface removed. Applicants respectfully assert that this is improper. “All words in a claim must be considered in judging the

patentability of that claim against the prior art.” In re Wilson, 424 F.2d 1382, 1385 (CCPA 1970).

As disclosed in the specification, the way in which the material is removed does produce differences in the final product. For example, acid etching tends to undercut the covering material, producing differences in the texture and sharpness of the etching. These characteristics are not present in abrasive etched articles. Furthermore, there are expected to be differences in surface finish, etc., that correspond to the technique used for removing material. For at least these reasons, the Final Office Action improperly construed the claim terms, and then proceeded to base the rejection upon these improper claim constructions.

9. SUMMARY

For at least the foregoing reasons, Applicant asserts that the pending claims are patentable over the art of record.

Respectfully submitted,
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By their Representatives,

Date: November 20, 2007

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APPENDIX I

The Claims on Appeal

We claim:

1. (Original) An etched metal article, the metal article comprising:

a compression-formed particulate metal object;

wherein a portion of the compression-formed particulate metal object has been selectively removed by an abrasive etching process from at least one surface of the object.

2. (Original) The etched metal article of claim 1, wherein the object further comprises an impregnant contacting at least a portion of the metal particles in the compression-formed particulate metal object.

3. (Original) The etched metal article of claim 1, wherein the metal particles are selected from the group iron, stainless steel, aluminum, nickel, magnesium, brass, bronze, copper, tin, zinc, lead, and alloys and combinations thereof.

4. (Original) The etched metal article of claim 1, wherein the compression-formed particulate - metal object is impregnated with an impregnant liquid prior to etching.

5. (Original) The etched metal article of claim 1, wherein the compression-formed particulate - metal object is partially sintered prior to etching and is impregnated with an impregnant liquid after being partially sintered but before being etched.

6. (Original) The etched metal article of claim 1, wherein the article further comprises a non-particulate object, the non-particulate object joined to the particulate metal object prior to etching of the particulate metal object.

7. (Original) The etched metal article of claim 1, wherein the article further comprises an etch resistant object, the etch-resistant object joined to the particulate metal object prior to etching of the particulate metal object;

wherein the etch resistant object is significantly more etch resistant than the particulate metal object.

8. (Original) The etched metal article of claim 1, wherein the article further comprises an etch resistant object, the etch-resistant object joined to the particulate metal object prior to etching of the particulate metal object;

wherein the etch resistant object is at least 50 percent more etch resistant than the particulate metal object to etching with particulate abrasives.

9. (Original) The etched metal article of claim 1, wherein the metal particles are at least partially sintered before abrasive etching of the object.

10. (Original) The etched metal article of claim 1, wherein the metal particles are at least partially sintered after abrasive etching of the object.

11. (Original) The etched metal article of claim 1, wherein the metal object is infiltrated with a molten metal.

12. (Original) The etched metal article of claim 1, wherein the object has a density at least 85 percent of the solid metal comprising the metal particles.

13. (Original) The etched metal article of claim 1, wherein the object has a density at least 80 percent density of the solid metal comprising the metal particles.

14. (Original) The etched metal article of claim 1, wherein the object has a density at least 70 percent density of the solid metal comprising the metal particles.

15. (Original) The etched metal article of claim 1, wherein the object has a density of at least 60 percent density of the solid metal forming the metal particles.

16. (Original) The etched metal article of claim 1, wherein the object has a density of at least 50 percent density of the solid metal forming the metal particles.

17. (Canceled) A method of making an imaged metal object, the method comprising:
providing a particulate metal composition;
compressing the particulate metal composition such that the particulate metal

composition forms a metal-containing object, the object having a density of between 60 and 90 percent of the density of the metal forming the particulate metal composition; and

abrasively etching a image into the particulate metal composition so as to remove a portion of the object.

18. (Canceled) The method of claim 17, further comprising impregnating the object with a non-metallic composition before or after abrasively etching an image.

19. (Canceled) The method of claim 17, further comprising providing a mask over a portion of the metal-containing object so as to form a selectively etchable object.

20. (Canceled) The method of claim 17, further comprising at least partially sintering the metal metal-containing object before or after etching.

21. (Canceled) The method of claim 17, further comprising impregnating the metal-containing object after sintering but before etching.

22. (Canceled) The method of claim 20, wherein the particulate metal composition is at least partially sintered after etching the image into the object.

23. (Canceled) The method of claim 20, wherein the particulate metal composition is at least partially sintered before etching the image into the object.

24. (Canceled) The method of claim 17, wherein the metal-containing object has a density of at least 70 percent of the density of the solid metal forming the particulate metal composition.
25. (Canceled) The method of claim 17, wherein the metal-containing object has a density of at least 80 percent of the density of the solid metal forming the particulate metal composition.
26. (Canceled) The method of claim 17, wherein the metal-containing object is secured to a second layer after compression forming of the object, said second layer providing a backing for the metal containing object.
27. (Canceled) The method of claim 17, wherein the metal-containing object is secured to a second layer after compression forming of the object, said second layer providing a cover layer for the metal containing object.
28. (Canceled) The method of claim 27, wherein the cover layer is removable by etching.
29. (Canceled) The method of claim 17, wherein the metal object is compression formed by a roll press.
30. (Canceled) The method of claim 17, wherein the metal object is compression formed by a piston press.

31. (Original) An etched metal article, the metal article comprising:

a multi-layer object comprising:

- a) a compression-formed particulate metal layer, the particulate metal layer formed by pressing a substantially free-flowing particulate material under sufficient pressure such that it forms a substantially rigid sheet and impregnating the sheet with an impregnant such that the rigid sheet is readily etchable by abrasive etching, and
- b) an etch-resistant layer in contact, or near contact, with the particulate metal layer, the etch-resistant layer having at least twice the resistance to abrasive etching as the compression-formed particulate metal layer;

wherein a portion of the compression-formed particulate metal layer has been selectively removed to expose the etch-resistant layer

32. (Original) The etched metal article of claim 31, wherein the etch-resistant layer comprises a solid metal object.

33. (Original) The etched metal article of claim 31, wherein the portion of the compression-formed particulate metal layer is selectively removed by using a photosensitive mask.

34. (Original) The etched metal article of claim 31, wherein the compression-formed particulate metal layer is partially sintered before being impregnated.

APPENDIX II

Art of Record and Other References

I. Art of Record

None.

II. Other References

None.

APPENDIX III

Cited Statutes, Rules, and Caselaw

I. Statutes and Rules

None.

II. Caselaw

None.

APPENDIX IV

Evidence Appendix

None.

APPENDIX V

Related Proceedings Appendix

None.